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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,354	02/11/2002	Craig A. Scheer	SCATP001	5742

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EXAMINER

TADESSE, YEWEBDAR T

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 02/13/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/074,354

Applicant(s)

SCHEER ET AL.

Examiner

Yewebdar T Tadesse

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 12-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-14, 16-19 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 15 and 20-22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 12-14, 16-18 and 24-26 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Sun et al (US 2002/0100416 A1).

As to claim 12, Sun et al discloses (see Fig 1) a particle deposition system (10) comprising a deposition chamber (15) having an inlet, a conduit (line 102) coupled to the inlet of the deposition chamber, the conduit being in flow communication with a source of gas containing particles, and the conduit having a first branch (line 163) and a second branch (line 109); a particle counter (CNC 160) disposed in the first branch of the conduit; an orifice (flow restriction device 126) and a vacuum (vacuum pump 16) coupled in flow communication with the first branch of the conduit (through line 111 or 111A) and the second branch of the conduit (line connecting the vacuum and CNC).

As to claim 13, Sun et al's first branch (line 163) is capable of being closer to the source of gas (atomizer section 11) containing particles than the second branch of the conduit depending on the design choice.

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As to claim 14, Sun et al discloses (see Fig 1) a first solenoid (on-off valve 165) disposed in the first branch of the conduit between the particle counter (CNC) and the vacuum (16); and a second solenoid (on/off valve 116) between the orifice (126) and the vacuum (16).

As to claim 16, in Sun et al the source of the gas containing particles is an atomizer (11).

With respect to claim 17, Sun et al discloses (see Fig 1) a differential mobility analyzer (DMA) in flow communication with the atomizer.

As to claim 18, Sun et al discloses an orifice (54) disposed before the differential mobility analyzer (DMA) and an orifice (92) disposed after the DMA.

As to claims 24-25, Sun et al discloses (see Fig 1 and page 4, paragraph 0041) a particle deposition system, comprising an atomizer (11) for providing a flow of gas containing particles; a flow control device (three-way valve 42) coupled in flow communication with the atomizer; a differential mobility analyzer (DMA) coupled in flow communication with the flow control device; and a deposition chamber (15) coupled in flow communication with the flow control device and the DMA wherein the particles in the flow of the gas containing the particles are to be filtered by the DMA, the flow control device (42) directs the flow of gas containing particles toward the DMA, and when the particles in the flow of the gas containing particles are not to be filtered by the DMA, the flow control device (three-way valve 42) directs the flow of the gas containing the particles toward the deposition chamber (15).

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As to claims 26, Sun et al discloses (see page 4, paragraph 0041) when the particles in the flow of the gas containing the particles having a size that is not larger than 1.5 microns (smaller than 30-50 nm), the flow control device directs the flow of the gas containing the particles towards the DMA, and when the particles in the flow of the gas containing the particles having a size that is larger than 1.5 micron (within the range of 500-4000 nm), the flow control device directs the flow of the gas containing the particles toward the deposition chamber.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al (US 2002/0100416 A1) as applied to claim 12 above, and further in view of Loan et al (US 6,136,725). Sun et al discloses a pressure sensor 54 disposed before DMA and a second pressure sensor (105) disposed across the orifice (109) after the DMA, however Sun et al lacks teaching a pair of pressure sensors. Loan et al teaches (see Fig 3) a pair of pressure sensors (48, 50) disposed across the orifice (flow element 54) in the gas-flow control subsystem. It would have been obvious at the time the invention was made to include a pair of pressure sensors across the orifice of the Sun et al device to measure the pressure difference across the orifice and calculate the rate of gas flow through the orifice as taught by Loan et al (see column 7, lines 9-15).

6. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al (US 2002/0100416 A1) as applied to claim 12 above, and further in view of Liu et al (US 4,928,537). Sun et al lacks teaching the conduit (102) in flow communication with a source of makeup gas. Liu et al discloses (see Fig 1 and column 5, lines 40-48) a make-up gas source (28) connected to processing lines and a chamber. It would have been obvious at the time the invention was made to connect Sun et al's conduit to a source of make-up gas to raise the pressure of the chamber as taught by Liu et al.

***Allowabl Subject Matter***

7. Claims 15 and 20-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: regarding claim 15, Sun et al discloses in the first branch an orifice 166 between solenoid (valve 165) and vacuum (16). Sun et al does not disclose an orifice in the first branch of the conduit between the CNC and the valve 165. Prior art of record does not disclose or suggest an orifice in the first branch of the conduit between the particle counter and the first solenoid. As to claims 20-22, prior art of record does not disclose or suggest a particle deposition chamber further having a third branch in flow communication with the vacuum.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yewebdar T Tadesse whose telephone number is (703) 305-3539. The examiner can normally be reached on Monday-Friday 8:00 AM-4: 30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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305-7718 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

*Yehuda P-G.*

YTT  
February 10, 2003

A handwritten signature in cursive script, appearing to read "R. Crispino".

RICHARD CRISPINO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700